Waste water drainage
TECHNICAL DESIGN GUIDE

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CONNECT TO BETTER

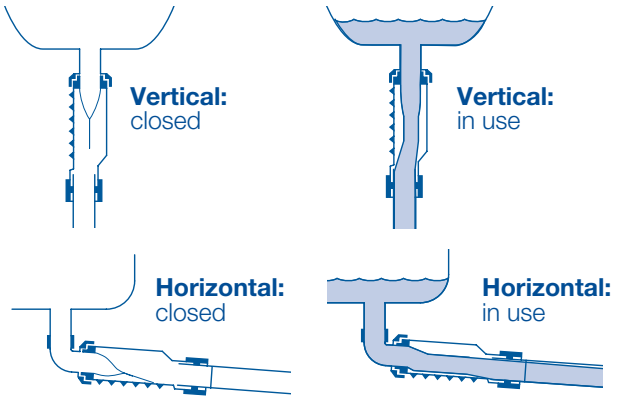
Hep_VO Sanitary Waste Valve
A hygienic alternative to conventional traps

Hep_VO is a self sealing valve designed to close the waste connection below a sanitary fixture to prevent the escape of foul sewer air into the dwelling. Hep_VO unlike conventional waste traps, does not rely on trapped water to create a seal. Instead, Hep_VO uses a self-sealing membrane which performs the same function as a water seal trap but without the risk of evaporation, siphonage, or cracking under freezing conditions. The Hep_VO Sanitary Waste Valve means enhanced plumbing design and system efficiency, without compromising performance or risking the escape of foul air into the living space from the drain or sewer.

Hep_VO - Operation

Hep_VO a barrier between Living Space and the Drainage system.

Foul sewer gas must be prevented from entering the building. The loss of the water seal in a conventional trap can cause gurgling noises, objectionable smells, allow insect ingress, and has the potential to allow the spread of health hazards (such as SARS).



The Hep_VO Sanitary Waste Valve opens under the water pressure of a fixture emptying and closes to form a tight seal after the fixture has discharged.

Hep_VO - Product Features

- **Dry Seal Technology**
  – cannot fail by evaporation or siphonage
- **Admits Air**
  – Relieves negative pressure in drain system
- **One Way Valve** – Prevents Foul Odors

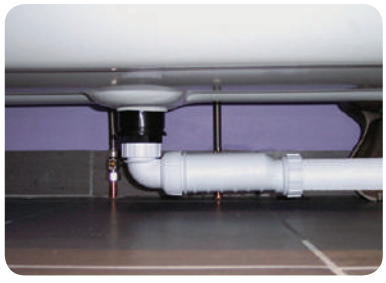
Hep_VO will out-perform a conventional trap by preventing the escape of foul air under excessive operating conditions up to 10 times greater than those normally experienced in a correctly designed Soil & Waste system. By comparison, conventional traps allow foul sewer air to bubble-through the seal at relatively low positive pressures.

In addition because Hep_VO does not trap water that may contain food scraps or other waste, microbiological growth of a fungal, bacterial or viral nature is less likely.

Hep_VO fully meets the requirements of ASME A112.18.8 – as an alternate to a tubular p-trap.

Hep_VO - Applications

- Lavatories
- Sink
- Washing Machine
- Overflow
- Shower
- Bath Tubs
- Bidet
- Garbage Disposal (Vertical Only)
- Dishwasher

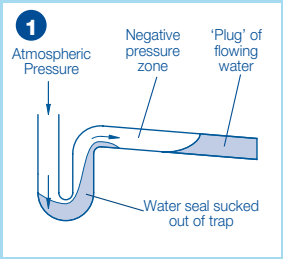


Minimizes the space required behind a lavatory or beneath a bath tub/shower tray.

Hep$_V$O - Design and Performance

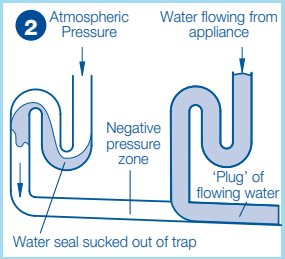
The Problem: Conventional waste traps work by having a water seal to prevent foul odors entering buildings. However a water trap can fail under a number of conditions. The following diagrams show several problems that result in loss of water seal, gurgling and foul smells.

Self Siphonage



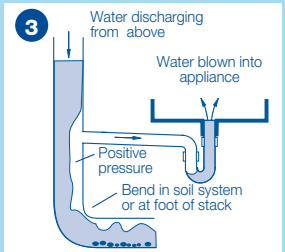
Self Siphonage: water flowing down the discharge pipe draws the water from the trap.

Induced Siphonage



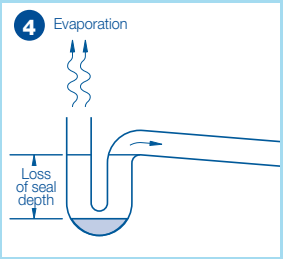
Induced Siphonage: the water seal is drawn out of the trap by water discharging from a fixture downstream (e.g. washing machine).

Compression



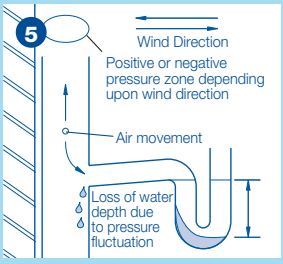
Compression: water is pushed out of the trap by a positive pressure caused by discharging of fixtures located above (e.g. WC).

Evaporation



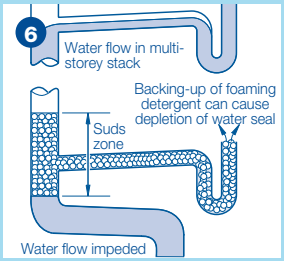
Evaporation: water in the trap evaporates during periods of non-use (e.g. during vacation or when fixtures are not being used).

Wind Effect (wavering out)



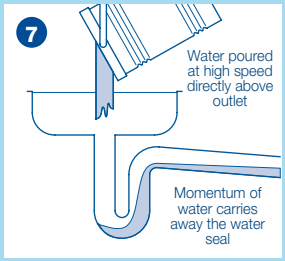
Wind Effect: air movement across the top of the Soil & Vent Pipe causes reciprocation of water in the trap and potential for loss of seal depth.

Foaming



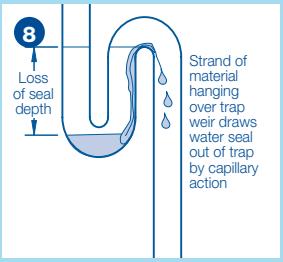
Foaming: agitation of waste water containing detergents in the Soil and Vent pipe creates foaming which pushes water out of the trap.

Momentum



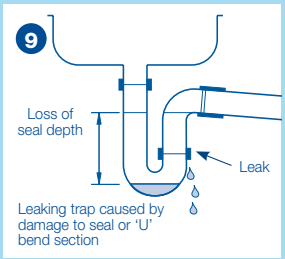
Momentum: waste water from a bowl or pail poured directly in to the waste outlet carries water out of the trap due to speed of discharge. This is also common with modern, funnel shaped basin designs.

Capillary Action



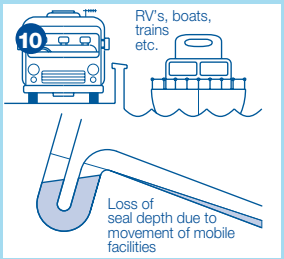
Capillary Action: fibrous material retained in the trap and hanging over the weir draws water out of the trap.

Leakage



Leakage: badly fitting or loose components and/or damaged seals can allow water to leak causing loss of seal depth.

Movement



Movement: In mobile facilities such as RV's and boats movement can cause potential for loss of water in the trap.

Hep$_V$O - The SOLUTION

When installed in accordance with manufacturer's instructions the unique Hep$_V$O Sanitary Waste Valve is the solution to all these problems.

Hep$_V$O provides a constant seal against sewer gas ingress, which is maintained under all normal operating conditions. Hep$_V$O Sanitary Waste Valve actively eliminates negative pressure within the waste system by opening and allowing in fresh air until a state of equilibrium with atmosphere is reached. Hep$_V$O Sanitary Waste Valve resists blockages, prevents nasty smells, gurgling sounds and stagnant water under all circumstances.

Hep$_V$O - Installation Benefits

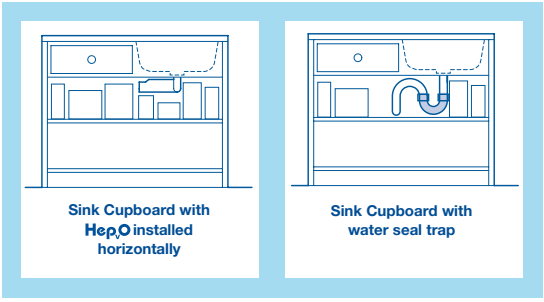
Hep$_V$O is a new concept in the prevention of foul air escaping into the building while actively eliminating negative pressure in soil and waste installations. It allows the designer greater flexibility on fixture and venting installation without compromising the performance of their sanitary seals.

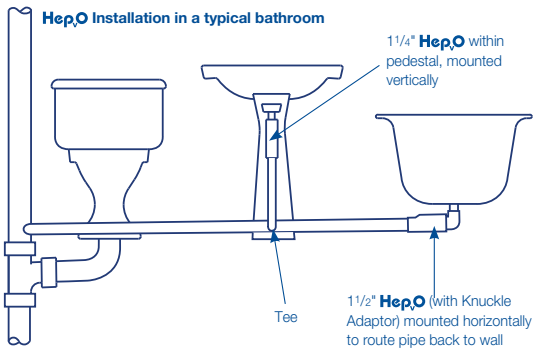
System Simplification - *Design Freedom and Economic Benefits*

Regulations for waste system design set limits on length and slope of pipes and the number of fixtures which can be connected to a waste pipe in order to keep pressure fluctuations to a minimum. This may be rectified by the incorporation of vent pipes at appropriate design locations.

The incorporation of Hep$_V$O provides a good sanitary system offering minimum resistance to flow.

1. Compact design, flexibility of location and ability to actively eliminate negative pressure improves system performance.
2. A typical fixture will drain more quickly when Hep$_V$O a is installed compared to a p-trap installation. This helps keep downstream piping cleaner and reduces maintenance requirements.
3. There is no trap to vent distance limitations based on the slope of the pipe and the elevation of the vent connection.
4. Where necessary tight radius bends can be used, without fear of siphonage or compression.





Hep$_V$O - Installation & Maintanance

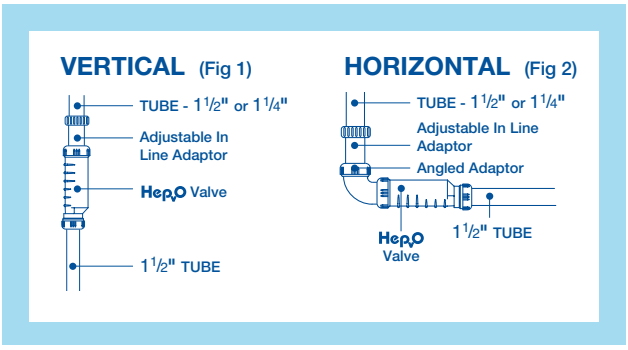
Slip-nut and sealing cone on tube end ready for insertion of tube into compression socket.

INSTALLATION

1. Cut the tube to length, allowing for the full compression socket depth, (preferably using an appropriate tube cutter).
2. If using plastic tube remove any loose material from the inside and the outside of the end of the tube. If using metallic tube remove any burrs or sharp edges from the inside or the outside of the tube and file if necessary. Mark the socket depth on the tube, and check that the tube section to be joined is free of any damage which may affect the joint seal.
3. Unscrew the Hep$_V$O slip-nut from the outlet/inlet adaptor and slide the slip-nut, slip washer and rubber seal onto the tube.
4. Insert the tube end fully into the socket.
5. Slide the rubber seal, slip washer and screw slip-nut against the face of the socket, and tighten the slip-nut by hand, (check that the slip-nut is square to the body and does not 'cross-thread'), hand tight should be adequate to form a proper seal.
6. Threaded connections can be made to the inlet or outlet of the Hep$_V$O valve. At the outlet it is first necessary to remove the slip-nut and rubber seal. If making connections to threaded components that do not have an integral seal (for example connection to DWV adaptors) PTFE/TEFLON tape should be applied to the thread prior to assembly.

MAINTENANCE

If mechanical devices such as spiral cables, rippers or water jetters are required to clear blockages in the waste system, the Hep$_V$O valve must be removed first. It is good practice to rinse the Hep$_V$O valve with a little clean water before replacing it in the system.



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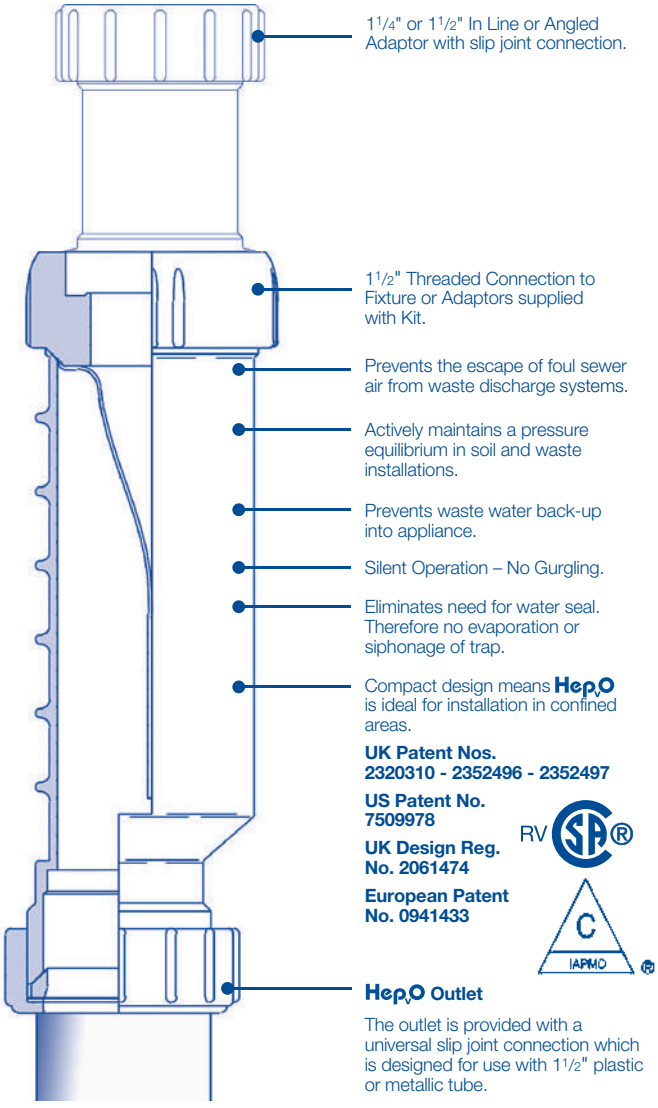
HepvO Valve Components



For further information on Hep_VO and other Wavin products visit: www.wavinoverseas.com

Tollfree Helpline 800-241-5236 or e-mail sales@a-s-m.com.

Frequently Asked Questions

1. **Is Hep_VO used in addition to a conventional trap?**
   NO, unlike other products which prevent foul odors entering the living space, Hep_VO is used instead of a conventional water-seal trap.

2. **Will I still need to install auxiliary venting on waste pipe branches?**
   NO, Hep_VO acts as a highly effective local air admittance device, removing the need for secondary venting.

3. **Can I use drain cleaning chemicals?**
   Hep_VO is resistant to standard caustic-based drain cleaners. It is also resistant to acid-based cleaners with concentrations up to 10%. When flushing with higher concentrations of acid based cleaner, the valve must be removed before the operation. After any maintenance, it is recommended that the valve is flushed through with clean water.

4. **Hep_VO is a new product to me - how can I be confident that it will give a good installed performance?**
   Hep_VO is new to the North American market but it is not a new product. It has been in volume production in the UK since 1997 and it is widely used in Europe, Australia and the Far East. It has attained numerous international approvals against very demanding standards and has achieved an enviable track record of trouble-free performance.

5. **Will Hep_VO promote better hygiene by stopping the escape of foul sewer air into habitable spaces?**
   YES - The valve has been proven to perform under conditions in which traditional water seal traps are vulnerable to failure. It will continue to perform under back pressures 10 times greater than those experienced in correctly designed soil and waste systems.

6. **Does the air tight seal break down if a strand of cloth or hair collects in the strainer and falls down between the faces of the valve?**
   NO - Hep_VO has undergone extensive foreign body testing (ASME A112.18.8). Tests show that the valve will maintain an air tight seal around an obstruction such as hair, fabric strands or spaghetti.

7. **What is the life expectancy of Hep_VO?**
   Installed correctly can be expected to have a life expectancy at least equivalent to current water sealed traps. In addition Hep_VO is guaranteed against defects in materials or manufacturing for a period of 3 years.

8. **Will Hep_VO block easily for example if fat is discharged through it?**
   NO - Extensive testing has shown that Hep_VO is less prone to blockage than traditional water seal traps. Note: because the 'straight through' design of Hep_VO does not trap debris discharged through the waste fixture care should be taken with jewelry and other valuables.

9. **Will the seal be maintained even when the fixture hasn't been used for some time?**
   YES - Hep_VO does not depend on a water seal and so it will continue to maintain a seal whether a fixture never gets used or is used very infrequently.

10. **Does the valve make a noise?**
    Under normal conditions Hep_VO operates silently, unlike normal traps that are prone to 'gurgle'

11. **Will Hep_VO support microbiological growth?**
    NO - The materials used to manufacture Hep_VO will not support microbiological growth for example mold and mildew.

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